

Amendments to the Specification

Please replace paragraph 4, page 3 with the following amended paragraph:

Figures 1-3 illustrate circuit diagrams for three embodiments of the invention; ~~and~~

Please replace paragraph 5, page 3 with the following amended paragraph:

Figures 4-6 illustrate three additional embodiments[.];

Please add the following new two paragraphs after paragraph 5 on page 3:

Figure 7 illustrates an inlet throttle valve; and

Figure 8 illustrates a solenoid controlled on-off valve.

Please replace the first full paragraph on page 4 with the following amended paragraph:

Six pump assemblies are disclosed. Each assembly includes a high-pressure pump and a hydraulically actuated spool-type inlet throttle valve 24, of the types disclosed in U.S. patent No. 6,460,510 and illustrated in Figure 7.

Please replace paragraph 2, page 4 with the following amended paragraph:

The inlet throttle valve 24 includes a spring 32 which biases ~~the~~ valve spool 90 toward a full open position shown in

Figure 7 for flowing a high volume of oil to the high-pressure pump. ~~A pressure~~ Pressure chamber 94 ~~at one end of the spool~~ is supplied with pressurized oil for biasing the valve spool against the spring 32 toward a minimum flow or closed position restricting the volume of oil flowed to the high-pressure pump.

Please replace paragraph 3, page 4 with the following amended paragraph:

In each pump assembly, hydraulic fluid is flowed to and vented away from the inlet throttle valve by fast acting solenoid actuated control valves in response to signals from the electronic control module (ECM). Each system is part of an internal combustion engine with components actuated by high-pressure fluid, typically a diesel engine with hydraulic electronic unit fuel injectors. The pump assemblies may actuate other components including inlet and exhaust valves. Figure 8 illustrates a fast-acting poppet-type valve 36 of Figure 1. Valve 36 may be a fast-acting spool valve. The other fast-acting valves of Figures 1, 3, 4 and 6 are similar to valve 36.

Please replace paragraph 3, page 5 with the following amended paragraph:

Inlet throttle valve 24 includes a valving spool 90 movable between open and closed positions to throttle inlet flow of oil

to pump 22. ~~Spring~~ Inlet throttle spring 32 biases the spool toward the full open position. The spool 90 comprises a piston 92 on the end of the spool away from spring 32 which faces a hydraulic pressure chamber 94 in the valve communicating with pressure line 34. The pressure in the chamber biases the spool toward the closed position. The position of the spool in the valve, and the flow area of the inlet throttle valve, are determined by a pressure balance between the spring force and the hydraulic force acting on the spool. Increased pressure in the chamber moves the spool toward the closed position to reduce flow to pump 22. Correspondingly, decreased pressure in the chamber allows spring 32 to move the spool toward the open position to increase flow to pump 22.

Please replace paragraph 2, page 6 with the following amended paragraph:

Solenoid controlled valves 36 and 38 each include ~~[[a]]~~ an on-off valving member 100, which may be a spool or a poppet, and a spring 46 biasing the valving member toward a closed position, preventing flow of oil through the valve. Each valve also includes a solenoid 48 connected to the ECM. When actuated, each solenoid moves the valving member to an open position. Valve 36 flows high-pressure oil from line 20 to the inlet throttle valve

24 to bias the spool toward the closed or minimum flow position. Valve 38 drains oil from inlet throttle valve 24 to allow spring 32 to bias the spool toward the open position. The valves 36 and 38 are fast acting, permitting very rapid control of valve 24 in response to signals from the ECM.